

# Defining the wildland-urban interface: How local government becomes a partner at the table in community wildfire protection planning



*Photo by Stephanie Grayzeck*



*Photo by Barb Tuttle, Carol DeSain, & Betsy Bowen*



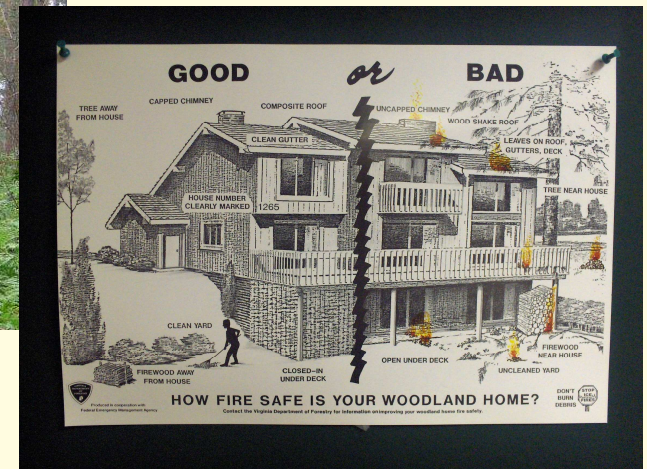
*Photo by Rachel Brummel*

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University of Minnesota

*Human Dimensions of Wildfire Conference  
Fort Collins, CO  
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# Changing wildfire policy

Policy shift from mainly fire suppression to a more complex agenda of suppression, preparedness, mitigation, and community assistance



Photos by Stephanie Grayzeck and Rachel Brummel

# Healthy Forests Restoration Act of 2003

- Promotes collaboration around wildland fire management
- Expedited fuels reduction projects
- Encourages preparedness through Community Wildfire Protection Plans (CWPPs)

*How have communities in the East responded to this most recent wildfire policy?*





- What's the outcome of federally-mandated collaboration?
- How do context and process influence collaborative outcomes in wildfire planning?
- How does the CWPP process impact social capacity?

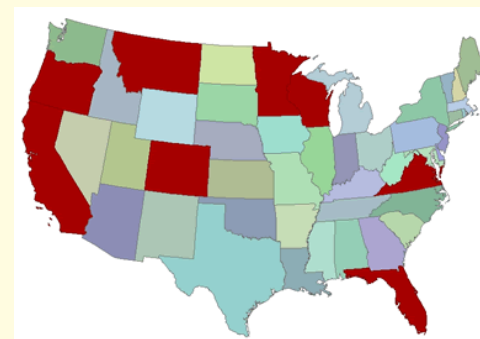
### Principal Investigators:

- Pamela Jakes, *USFS North Central Research Station*
- Dan Williams, *USFS Rocky Mountain Research Station*



### Partner Institutions and Investigators:

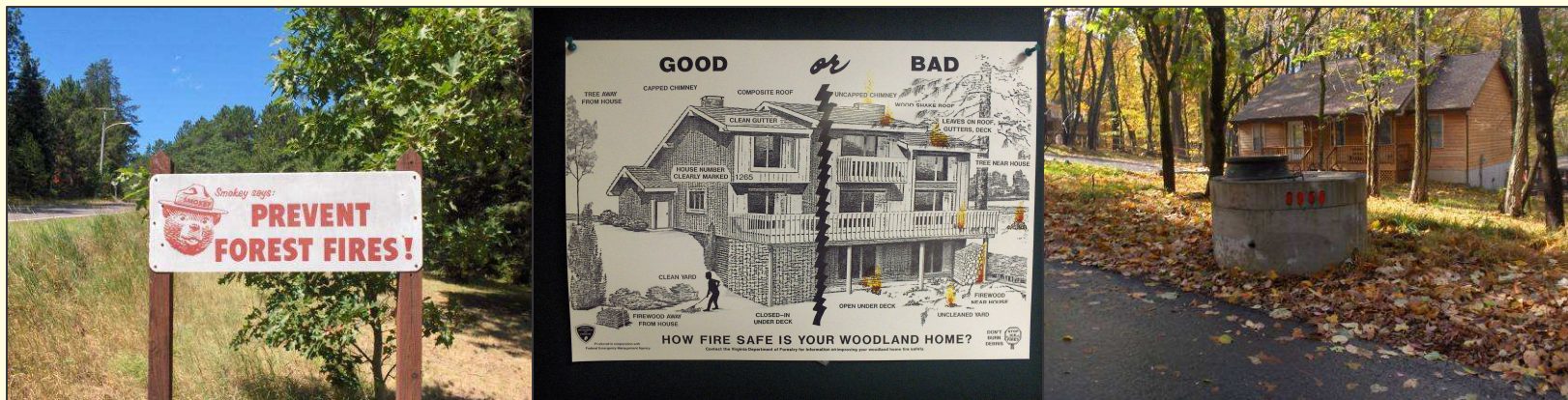
- Kristen C. Nelson, *University of Minnesota*
- Vicky Sturtevant, *Southern Oregon University*
- Tony Cheng, *Colorado State University*
- Sam Burns, *Fort Lewis College*





# Wildfire and social science

- Focus on homeowner awareness and perceptions in the East (*Nelson et al. 2005; Nelson et al. 2004; Winter and Fried 2003*)
- Community preparedness for wildfire (*Lang et al 2006; Jakes et al. 2003*)
- Community response to wildfire; Federal and state influences (*Steelman et al. 2004*)



Photos by Stephanie Grayzeck and Rachel Brummel

# A call for more understanding

- Must understand the dynamic, diverse nature of communities to implement fire mitigation measures across ownership boundaries  
*(Cheng and Becker 2005; Jakes et al 2003)*
- Difficult to stimulate local response to natural hazards, can be met with considerable variation in local responses  
*(Berke 1998)*
- Learning how communities implement land use and hazard mitigation measures can help formulate an evaluation framework for policy  
*(Field and Jensen 2004)*

# Community Wildfire Protection Plans (CWPPs)

Under HFRA, require collaboration between 3 entities:

Local government



Local fire department



State forestry agency



Plans must:

- Identify and prioritize areas for fuels reduction
- Provide recommendations to reduce structural ignitability



# CWPPs and the WUI

“The wildland-urban interface is the area where houses meet or intermingle with undeveloped wildland vegetation.”

- USDA and USDI 2001



Photo from <http://www.fs.fed.us/fire/partners/vfa/wui.html>



Photo from <http://www.fs.fed.us/fire/partners/vfa/wui.html>

Defined in the Federal Register as approximately  
1 house per 40 acres.

# CWPPs and the WUI

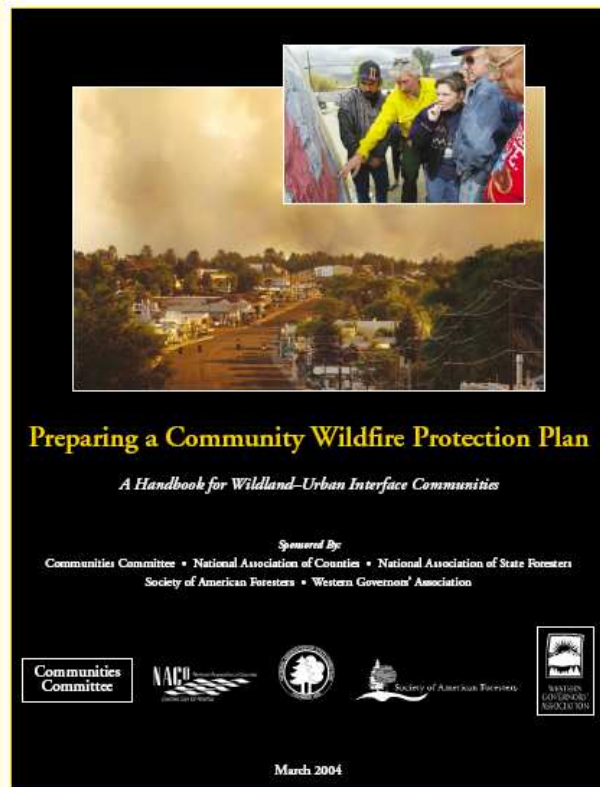
According to HFRA, the wildland-urban interface is considered **“any area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a Community Wildfire Protection Plan”**



Photo from <http://www.fs.fed.us/fire/partners/vfa/wui.html>

*What does this mean  
for communities?*

# CWPPs and the WUI



Communities have the opportunity to establish a locally appropriate definition and boundary for the WUI



# Why Look at the WUI?

- Evaluation of policy incentive
- Community-established WUI can help meet local needs
- WUI as a negotiated concept
- Opportunity to define common ground among diverse participants
- WUI boundary can include public land; allow for communities to influence action on public land (expedited fuels reduction)



*Photos by Stephanie Grayzeck and Rachel Brummel*

# Research Questions

*How have communities in the East responded to HFRA and used the WUI concept in CWPPs?*



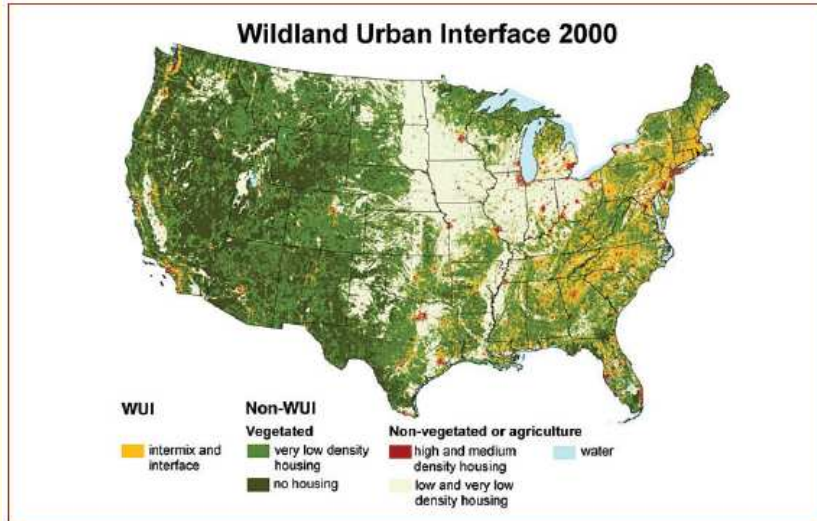
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# Research Questions

- *How is the WUI concept used in Eastern CWPPs?*
- *What factors influence the WUI definition and designation?*
- *Do communities redefine the terms and boundaries of the WUI to meet local needs?*



# Methods: Why Focus on the East?



Source: Radeloff et al. 2005b

- Greatest extent of the WUI is in the Eastern U.S.
- Wildfire is often viewed as a “western problem”
- Fire is important in the East, particularly in the southeast and the northern Great Lakes states

# Mixed Method Approach

- Document review of Eastern CWPPs
- Qualitative analysis of four Eastern case studies



*Photos by Stephanie Grayzeck and Rachel Brummel*

## ***Why?***

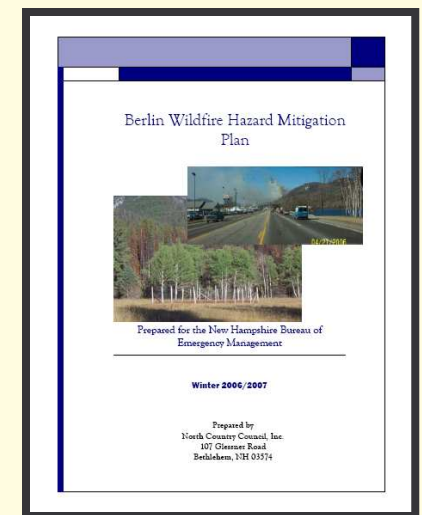
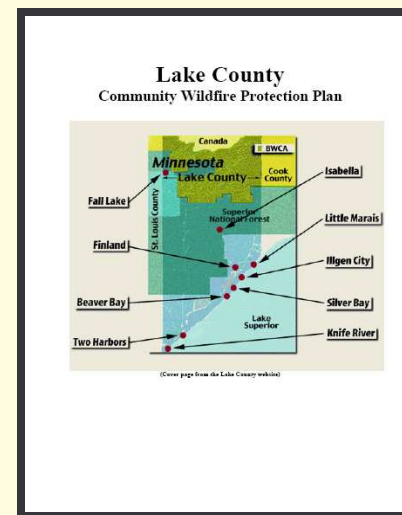
Broad look at how WUI concept is used in Eastern CWPPs complemented with in-depth experiences of the case studies

# Methods: Document Review

- USFS Regions 8 and 9
- Initial Google internet search, followed by phone/email contact with state forestry officials
- Plans had to include 3 entities under HFRA, completed after 2004

## Study variables:

- Participants in the plan
- Identification of the WUI
- Scale of the plan





# Methods: Case Study Analysis

Four Eastern U.S. case studies from larger JFS project:

Lake County, Minnesota



Taylor, Florida



Barnes and Drummond,  
Wisconsin



High Knob Owner's Association  
in Front Royal, Virginia



# Results and Discussion

- Many types of wildfire plans in East
- Diverse outcomes of a flexible policy
- Factors for deciding the WUI
- The importance of scale
- Template influence
- Participant influence



*Photo by Rachel Brummel*

# What is a CWPP?

- Ambiguity regarding what a CWPP is
- Difficult to track down
- Many plans done before HFRA, with parallel goals; not influenced by the policy
- Wildfire hazard assessments not fully developed CWPPs
- Some CWPPs served as dual plans (Firewise, Natural Hazards/FEMA)

# Document Review: Initial Results



*Photos by Stephanie Grayzeck and Rachel Brummel*

29 plans in 10 states

Four scales of planning:

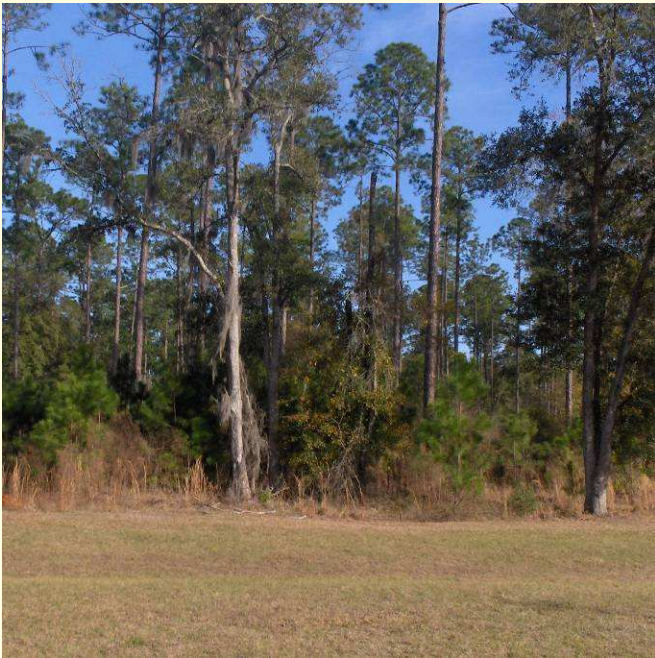
- county (5)
- multiple township (2)
- city/township (13)
- subdivision (9)

Four templates emerged

- Not tied to one scale
- Some used in different states



# Using the WUI Concept



*Photo by Rachel Brummel*

- Over half (15/29) of reviewed CWPPs used the WUI concept
- 14/29 plans did NOT use the WUI concept

# Using the WUI Concept

Of those plans that used the WUI concept, there was a gradient of precision:

- Identifying specific areas
  - More general
  - GIS process
- Identifying the entire planning area
- Subdividing planning area
- WUI = near federal land

# Important Factors for the WUI: Case Study Examples

Theme	Code
<i>Values</i>	general "values", population centers, structures, timber
<i>Hazards</i>	general "hazards", fuel loads, fire occurrence/incidence, population (human caused fires), lack of planning
<i>Infrastructure</i>	fire department boundaries, public land boundaries, response time, access/egress
<i>Other Criteria</i>	what needed work, landscape level planning, presence of public land blocks, local concerns
<i>Policy considerations</i>	ability to redefine the WUI, HFRA definition, population density (1 house per 40 acres), federal definition
<i>Tools</i>	condition classes, timber typing, local knowledge, risk assessment tool, fire incidence maps, Madison WUI data, GIS, census data, aerial photographs
<i>Difficulties</i>	confusion/conflict on WUI definition and boundaries, changes to the lines, more information needed

# Unique Factors for the WUI: Case Study Examples

- Minnesota: fire incidence, VFD boundaries
- Wisconsin: policy considerations, WUI difficulties
- Florida: public land boundaries



*Photos by Stephanie Grayzeck and Rachel Brummel*



# The Importance of Scale

Scale was an influence on whether the WUI concept was used:

- All large scale plans included mention of the WUI
- Variation at the city/township level
  - Larger cities used WUI concept
  - Small townships generally did not
- None of the subdivision-level plans used the concept of the WUI

# The Importance of Scale

County level

*“We wanted to cover most of the county with some sort of WUI...wherever we thought that there might be an area that some work needed to be done, we wanted that to be included within a wildland-urban interface area...So if you’re just doing something in a 3 or 4 mile radius around a community, that may not be everything that’s needed to be done. So that’s more of the bigger picture, on more of a landscape level.”*

(Minnesota Case Study, June 2006)

# The Importance of Scale

Subdivision level

*“I’m not, I probably didn’t use [the WUI]...Like I say, I go in and I sit down and talk with these communities as if we’re sitting around your table and talking.”* (Virginia Case Study, October 2006)



Photos by Stephanie Grayzeck

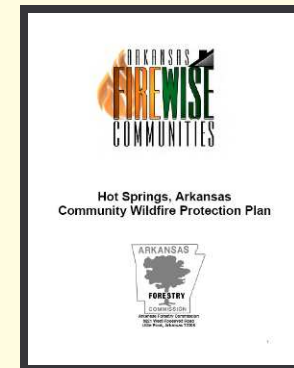
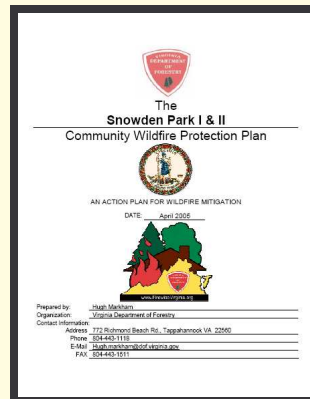
# Template Influence

## Southeast Template

Virginia, Florida, Kentucky, and Arkansas

- Differences in interpretation of the WUI
  - Identifiers (KY, AR)
    - ex. “Interface areas\_\_\_\_\_”
  - Specific area by acres (FL)
    - ex. “Area of urban/wildland interface\_\_\_\_\_”

- No WUI (VA)





# Template Influence

Texas and Ohio/Pennsylvania

- Texas template (subdivision level): no WUI
- Ohio/Pennsylvania template gives definition of WUI, then states that “conditions in many parts of the property encompassed in their respective fire district qualify under this definition.”
  - No specific areas identified

# Minnesota County

[illegible]

Lake County, MN CWPP

# Participant Influence

Participants also influence whether or not the WUI concept is used

- CWPPs are required to have three entities:

Local government



Local fire department



State forestry agency



- Additional partners include consulting Federal agencies and third party planning commission/council

# Participant Influence

## Federal Consultation

**Plans that included federal actors were more likely to use the WUI concept in CWPPs.**

*“In comes [US Forest Service individual], and [he] starts talking about redefining the wildland urban interface, and that the communities within this process have the ability to redefine the wildland-urban interface, and kept focusing on the idea that okay, one home per 40 acres.”*

(Wisconsin Case Study, July 2006)



# Participant Influence

Local government

Local government had political influence on the WUI...



Lake County, MN website

*“[The county commissioner] also wanted [the wildland urban interface] big because he’s, you know, he’s thinking problem assessments, problems and solutions, and so you know for fire that’s a lot of talk, fire starts burning and its burning fast and its going over a lot of area quite quickly.”*

(Minnesota Case Study, June 2006)

# Participant Influence

Local fire department

**...and local fire departments influence the WUI with local knowledge**

*“[The WUI boundaries] vary quite a bit. That was, we went back and forth, basically drawing lines on the map and that’s where the chiefs came in very important, drawing those lines because they know what’s out there exactly, and they know what’s what are the values at risk.”*

(Minnesota Case Study, June 2006)

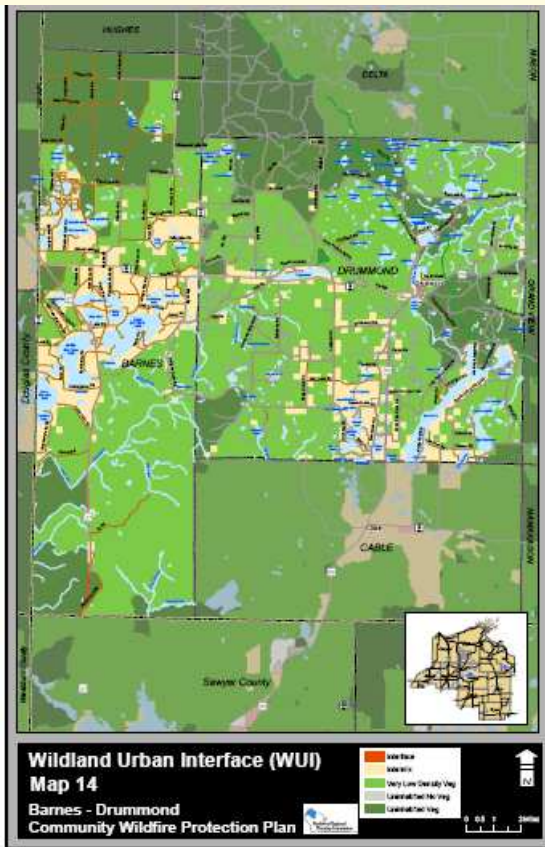


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# Participant Influence

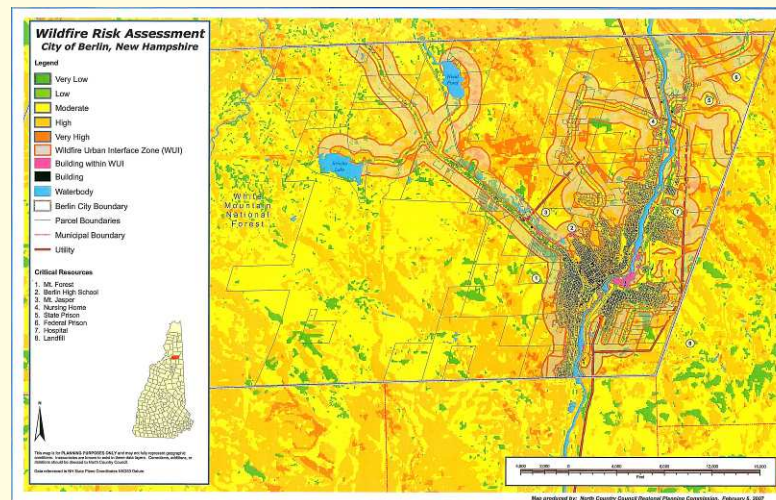
Third party planner

*Barnes and Drummmond  
CWPP*



- Planning entity can add a technological component
- Experience with GIS
- Barnes and Drummmond, WI and Berlin, NH

*Berlin, NH  
Wildfire Mitigation Plan*



# Conclusions



*Photo by Barb Tuttle, Carol DeSain, & Betsy Bowen*

- Many communities in the East are addressing their wildfire preparedness and completing CWPPs
- Communities are interpreting HFRA with tremendous variation at the local level
- State and federal government agencies play a vital role in CWPP development



# Conclusions

- WUI policy incentive is not utilized in all communities
- Land ownership patterns and population density make identifying the WUI more difficult in the East
- The use of this incentive in western CWPPs should be investigated



*Photo by Rachel Brummel*



# Conclusions

- Identifying the WUI gives communities and agencies an opportunity to make management distinctions between lived space and public lands
- As the wildland-urban interface continues to expand and change, we may see an evolution of the use of the WUI concept in the context of planning



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# Acknowledgements

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- CWPP Research Team
- Family, Ed, and friends



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# Thank You!



*Photos courtesy of Sue Prom*